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and their completeness through the year. Considerable attention is given to the matter of "formations" and "associations," as is the custom nowadays in works treating of distribution; it may be a question how far subdivision should be carried in this matter, and whether it is wise to refer to the "*Nemalion* association," "*Dasya* association" and the like, to indicate that a single species grows plentifully in certain localities, without, as far as stated by the author, admixture of any other plant. While much attention is paid to the habitats of the different species, favorable and unfavorable conditions, epiphytes, etc., the word "ecology" is generally conspicuous by its absence; this is to the writer a good sign, as authors who most enjoy using it seem often to be persons with a distaste or contempt for systematic botany, and the systematic botanist has learned to be somewhat cautious in accepting the names used for the plants making up their "associations," etc. The case is stated very compactly in a footnote to a recent paper by Tidestrom.<sup>1</sup>

While there will always be differences of opinion as to the limitations of species, etc., the writer, who is fairly familiar with the New England marine flora, has not found anything to indicate an error in determination in Dr. Davis's list.

While this work is by far the most complete study of the marine flora of any limited region of this continent, it leaves plenty of questions for further study. Among them the writer would suggest as specially interesting the matter of the different range in latitude on the two sides of the Atlantic, of a species occurring on both sides. The occurrence in the Woods Hole region of many Mediterranean species, but the absence of others associated with them in Europe, was long ago pointed out. While this is not taken up by Dr. Davis, it would seem to the writer that it may be due to the much greater range of temperature at Woods Hole, as indicated by the

charts, etc.; a Mediterranean annual demanding a high summer temperature, but passing the winter in the spore state, would find no difficulty in living here; while it would be impossible to acclimate an alga requiring a temperature of at least 40° Fahr. throughout the year. But some other cause must be found in the case of a species like *Hypnea musciformis*, abundant and luxuriant at Woods Hole, but not reaching to the English Channel; while *Dictyota dichotoma*, at its best on the English coast, has not been found with us north of North Carolina.

Botanists who desire uniformity of nomenclature will be glad to see that the international rules, as adopted at the Vienna Congress of 1905, are here followed,<sup>2</sup> and it is a matter for congratulation that so careful and thorough a work as Dr. Davis's has been brought out in so good shape as a government publication.

FRANK S. COLLINS

NORTH EASTHAM, MASS.

*A Bibliography of the Tunicata, 1469-1910.*

By JOHN HOPKINS, F.L.S., F.G.S., F.Z.S., etc., Secretary of the Ray Society. Printed for the Ray Society and sold by Dulau & Co., Ltd., 37 Soho Square, London, West, dated 1913.

The author prepared a portion of this bibliography, dealing with titles up to the year 1870, in connection with his preparation for

<sup>1</sup> The results of the Brussels Congress of 1910 were not published at the time Dr. Davis's manuscript was accepted by the government; under the rule that the names of Nostocaceæ heterocystæ and Nostocaceæ homocystæ date, respectively, from the "Revision" of Bornet & Flahault, and the "Monographie" of Gomont, a few names of authors, given in parenthesis by Dr. Davis, would be omitted, but no generic or specific names would be changed. It is possible that under a strict construction of the Vienna rules the name of *Griffithsia Bornetiana* may have to be given up; but as the few writers who have proposed a substitute use a name certainly unjustified by the same rules, Dr. Davis has done well to retain, in company with all other American algologists, the specific name given by Farlow.

<sup>2</sup> "Much argument ecological falls of its own weight when the entities considered are not known to the observers." Ivar Tidestrom, "Notes on Vol. XV., p. 104, 1913.

publication of Alder & Hancock's "British Tunicata." He has since completed it through the year 1910. He has added many titles to Herdmann's bibliographic list in his *Challenger* reports, which has been the standard bibliography for the Tunicata.

The bibliography is in the form of an author's index with full titles, with page references, and often with brief note as to contents. There are included not only works which deal exclusively or mainly with the Tunicata, as indicated in their titles, but very many works in which the reference to the Tunicata is not the main theme, general text-books being included in the list. Of course, no such list can possibly be entirely complete, but in this instance it is a remarkably full one and will be of great value to students of the group.

In several weeks' use of the bibliography the reviewer has noticed no inaccuracies and no omissions of any moment. It is a little unfortunate that about a tenth of the titles are placed in a supplementary list.

MAYNARD M. METCALF

OBERLIN, OHIO,  
October 1, 1913

*The Earth: Its Genesis and Evolution Considered in the Light of the Most Recent Scientific Research.* By A. T. SWAINE. London.

Worthless is a very strong adjective to apply to a book which is almost a model in paper, typography and illustration. Yet just what is the value of a book whose author believes that vital force produces matter (p. 72), that thus the earth is slowly growing larger (p. 263), that the great cycles of sedimentation correspond to a filling up of the great ocean depths, a straw-colored siliceous ooze below 3,000 fathoms and red clays corresponding to the basal quartzites and red beds (p. 20), that up to the close of the Paleozoic the light and heat energy of the sun had not been experienced on earth (pp. 144-151), but that an increase in temperature of the earth's crust in cycles was due to igneous activity and outflow of heat from the interior, which evaporated a large amount of the ocean (pp. 89, 95, 109, 174, 183, 193)? Compared with these heresies, the theory that

sedimentary rocks are fused sediments (p. 54), that erosion and conglomerates are largely due to the wash of the evaporated ocean condensing again (p. 95) with the tidal waves caused by earth movement paroxysms (pp. 186, 213), the explanation of transgressive formations (p. 95), of laterite (p. 199) and of drumlins (p. 245) are but minor. The book shows, however, a wide acquaintance with recent and the best geological literature, though it is curious in a book that dwells so much on geologic cycles of sedimentation that no mention seems to be made of Newberry or Schuchert. It contains a mass of geological fact mixed with the author's unique views put in an interesting way.

Conceivably, it might be of use to give to a rather advanced student, inclined to swallow what he reads too easily, as an emetic, asking him to show why the facts advanced by the author do not support his theories.

ALFRED C. LANE

#### SCIENTIFIC JOURNALS AND ARTICLES

THE first number of the new *Journal of Agricultural Research* published by the U. S. Department of Agriculture was issued October 10. It consists of eighty-seven pages of letterpress and line drawings and five plates, including one color plate. The articles in the first number are:

"*Citrus ichangensis*, a Promising, Hardy, New Species from Southwestern China and Assam."

"*Cysticercus ovis*, the Cause of Tapeworm Cysts in Mutton."

"The Serpentine Leaf-Miner."

In the introduction, written by Dr. B. T. Gallo way, assistant secretary, the purposes of the journal are explained as follows: "The recent advances in the theory and practise of agriculture have come almost entirely from scientific research applied to agricultural problems. Accumulated results of centuries of painstaking studies have been drawn upon, and it has become evident that further improvement in agriculture calls for continued investigation of the most accurate and thorough nature. The first recognition of the economic value of progress in these investigations as well as the initial application of theories to practical prob-